CLAIMS

What is claimed is:

1.    A method for forming a recipe for de-skewing wafers, comprising:

learning a first pattern at a de-skew site on a first wafer layer;

saving the first pattern and its location in a recipe for de-skewing wafers;

learning a second pattern at the de-skew site on a second wafer layer; and

saving the second pattern in the same recipe for de-skewing wafers.

2.    The method of claim 1, wherein said learning the first pattern comprises determining a score of uniqueness for the first pattern.

3.    The method of claim 2, wherein said saving the first pattern is performed when the score of uniqueness is greater than a threshold value.

4.    The method of claim 1, further comprising comparing the first pattern and the second pattern before said learning the second pattern.

5.    The method of claim 4, wherein said comparing comprises determining a score of similarity between the first pattern and the second pattern.

6.    The method of claim 5, wherein said learning the second pattern is performed when the score of similarity is less than a threshold value.

7.    The method of claim 1, wherein said learning the first pattern comprises:

removing a feature of the first pattern;

determining a score of uniqueness for the first pattern without the feature, wherein said saving the first pattern comprises saving the first pattern without the feature if the uniqueness score exceeds a threshold value.

8.    The method of claim 1, wherein said saving the first pattern in the recipe comprises saving a file name of a file including the first pattern.

9.    A method for forming a recipe for de-skewing wafers, comprising:

learning a pattern of a de-skew site on a wafer layer;

saving the pattern in a recipe for de-skewing wafers;

dividing additional wafer layers into a first plurality of wafer layers where the de-skew site can be recognized using said pattern and at least one wafer layer where the de-skew site cannot be recognized using said pattern;

learning an additional pattern of the de-skew site on said at least one wafer layer, wherein said at least one wafer layer can be recognized suing said additional pattern; and

saving the additional pattern in the same recipe for de-skewing wafers.

10.    The method of claim 9, wherein said at least one wafer layer comprises a second plurality of wafer layers, the method further comprising repeating said dividing, said learning, and said saving until there are no wafer layers in the second plurality of wafer layers.

11.    The method of claim 9, further comprising receiving instructions from a user on which pattern to learn prior to said learning pattern.

12.    The method of claim 9, wherein said at least one wafer layer comprises a second plurality of wafer layers, the method further comprising receiving instructions from a user on which pattern of the de-skew site of said the second plurality of wafer layers to learn prior to said learning the additional pattern.

13.    The method of claim 9, wherein said learning pattern comprises saving the pattern having a score of uniqueness above a threshold.

14.    The method of claim 9, wherein the first plurality of wafer layers can be recognized using said recipe if the pattern has scores of similarity with said de-skew site on the first plurality of wafer layers above a threshold.

16.    The method of claim 9, further comprising repeating learning the pattern, said saving the pattern, said dividing additional wafer layers, said learning an additional pattern, and saving the additional pattern for another de-skew site.

17.    The method of claim 9, wherein said saving the pattern comprises saving in the recipe a file name of a file including the pattern.

18.    A method for de-skewing wafers, comprising:

        receiving a pattern of a de-skew site on a wafer layer;

        finding a match of said pattern with a plurality of patterns in a recipe, wherein said recipe includes a first set of coordinates of the de-skew site and each of said plurality of patterns is a pattern of the de-skew site at a different layer;

        determining a second set of coordinates of the de-skew site on said wafer layer; and

        determining a transforming matrix from the first and the second sets of coordinates of the de-skew site.

19.    A recipe for de-skewing wafers, comprising a plurality of patterns of a de-skew site of a wafer, wherein the plurality of patterns include a first pattern at the de-skew site of a first wafer layer and a second pattern at the de-skew site of a second wafer layer.

20.    A recipe for de-skewing wafers, comprising at least one pattern used for recognizing a de-skew site on a plurality of wafer layers.

21.    The recipe of claim 20, wherein said at least one pattern comprises a plurality of patterns.

22.    The recipe of claim 21, wherein each of said plurality of patterns are used for recognizing the de-skew site on multiple wafer layers.

23.    A method for forming a recipe for de-skewing wafers, comprising:

        learning a first pattern at a de-skew site on a first wafer layer;

        saving the pattern in the recipe for a plurality of wafer layers;

        determining if the first pattern matches a second pattern at the de-skew site on a second wafer layer; and

using said first pattern to de-skew the first and the second wafer layers when the first pattern matches the second pattern.

24.     A method for de-skewing wafers, comprising:

receiving a de-skew pattern at a de-skew site on a wafer layer;

finding a match of said de-skew pattern with a learned pattern in a recipe, wherein said recipe includes a first set of coordinates of the de-skew site and said learned pattern, said learned pattern matching a plurality of patterns at the de-skew site on a plurality of wafer layers;

determining a second set of coordinates of the de-skew site on said wafer layer; and

determining a transforming matrix from the first and the second sets of coordinates of the de-skew site.